

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		04-46e	Apr 3/22/05	Apr 4/26/05

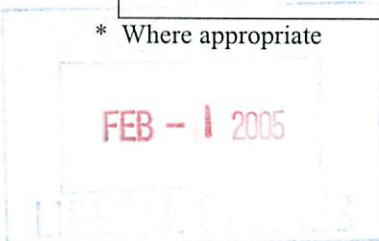
Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Dr. John Engler	Email Address jme@iup.edu
Proposing Department/Unit Safety Sciences Department	Phone 7-3271

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)		
<input checked="" type="checkbox"/> New Course	<input type="checkbox"/> Course Prefix Change	
<input type="checkbox"/> Course Revision	<input type="checkbox"/> Course Number and/or Title Change	
<input type="checkbox"/> Course Deletion	<input type="checkbox"/> Catalog Description Change	
SAFE 320 Recognition, Evaluation and Control of Occupational Health Hazards I		
<u>Current Course prefix, number and full title</u>	<u>Proposed course prefix, number and full title, if changing</u>	
2. Additional Course Designations: check if appropriate		
<input type="checkbox"/> This course is also proposed as a Liberal Studies Course.	<input type="checkbox"/> Other: (e.g., Women's Studies, Pan-African)	
<input type="checkbox"/> This course is also proposed as an Honors College Course.		
3. Program Proposals		
<input type="checkbox"/> New Degree Program	<input type="checkbox"/> Program Title Change	
<input type="checkbox"/> New Minor Program	<input type="checkbox"/> New Track	
<input type="checkbox"/> Catalog Description Change	<input type="checkbox"/> Program Revision	
<input type="checkbox"/> Other		
<u>Current program name</u>	<u>Proposed program name, if changing</u>	
4. Approvals		
Department Curriculum Committee Chair(s)	<i>Lo Ferguson</i>	Date 1/12/05
Department Chair(s)	<i>Lo Ferguson</i>	1/22/05
College Curriculum Committee Chair	<i>Elizabeth Palmer</i>	1/28/05
College Dean	<i>Carleen C. Zoni</i>	2-1-05
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	<i>Gail Seehurst</i>	3-22-05

* Where appropriate



Gail Sechrist

From: "Gail Sechrist" <gailsech@iup.edu>
To: "Michael Flickinger" <nqqi@iup.edu>; "Patrick Barnacle" <ktpl@iup.edu>; "Jamie Coccarelli" <kcpl@iup.edu>; "Russell Peterson" <rpeterso@iup.edu>; "Robert Soule" <Robert.Soule@iup.edu>; "Muhammad Numan" <mznuman@iup.edu>; "Mary Sadler" <msadler@iup.edu>; "Mark Staskiewicz" <mjstat@iup.edu>; "Marcia McCarty" <mmccarty@iup.edu>; "John Orife" <jorife@iup.edu>; "Jamie Martin" <jmartin@iup.edu>; "Jack Scandrett" <jscandt@iup.edu>; "Gail S Sechrist" <gailsech@iup.edu>; "Fuyuko Matsubara" <fuyuko@iup.edu>; "Carmy Carranza" <carmycgc@iup.edu>; "Chauna Craig" <CCraig@iup.edu>; "Mary Anne Hannibal" <Hannibal@iup.edu>; "Kustim Wibowo" <kwibowo@iup.edu>
Cc: "J.B. Smith" <jbsmith@iup.edu>
Sent: Monday, May 02, 2005 2:34 PM
Subject: Please Read and Respond

UWUCC,

After the Senate meeting the registrar's office notified me of a problem with the newly approved SAFE 420. There is already a current course in the catalog with that number. The new SAFE 320 and 420 are a two course sequence so this will mean changing both course numbers to 330 and 430, which are available numbers. Since number changes just go to the Senate for information, JB and I decided that this did not require a special Senate meeting.

I do, however, want UWUCC approval this week so that the correct numbers can be put in the catalog this summer. Just reply Yes if this change has your approval. Good luck with the grading/exams.

Gail

Yes

Patrick Barnacle

Jamie Martin

Muhammad Numan

Kustim Wibowo

Michael Flickinger

Mark Staskiewicz

Jack Scandrett

Carmy Carranza

Jamie Coccarelli

Chauna Craig

Fuyuko Matsubara

Mary Sadler

Russ Peterson

Mary Ann Hannibal

New Course Proposal:
**SAFE 320 Recognition, Evaluation and Control of
Occupational Health Hazards I**

Part II. Description of Curricular Change

1. Syllabus of Record.

The new syllabus is attached in Appendix A.

2. Course Analysis Questionnaire

Section A: Details of the Course

A1 How does this course fit into the programs of the department? For which students is the course designed? Explain why this content cannot be incorporated into an existing course.

This course is designed as a junior level industrial hygiene course for Safety Science Majors but it can also be taken as an elective for Safety Science Minors and Environmental Health Majors. The content of this course was previously covered in three SAFE courses (SAFE 301, 303 & 402) Specifically the recognition of health hazards was covered in SAFE 301, the control in SAFE 303 and the evaluation in SAFE 402. This three course sequence created overlap and department faculty believed it was more efficient to address the recognition, evaluation and control of health hazards together in two courses. The two courses were divided based on chemical, physical and biological hazards. This course will focus on the chemical hazards while SAFE 420 will focus on the physical and biological hazards.

A2 Does this course require changes in the content of existing courses or requirements for a program?

Yes, we will be deleting three SAFE courses, SAFE 301, 303, and 402.

A3 Has this course ever been offered at IUP on a trial basis ?

No, it has not been offered on a trial basis.

A4 Is this course to be a dual-level course?

No, this course will not be dual level.

A5 If this course may be taken for variable credit, what criteria will be used to relate the credit to the learning experience of each student?

This course will not be offered for variable credit.

A6 Do other higher education institutions currently offer this course?

Yes several other higher education institutions do offer a similar course.

Murray State University offers:

OSH 420 Industrial Hygiene (3sh).

An introduction to the field of industrial hygiene, including the chemical, physical, and biological agents which affect the health and safety of employees; the application of control measures for the various agents; study of threshold limit values and occupational health toxicology. Prerequisites: CHE 105, CHE 210/215, MAT 230 and PHY 125.

OSH 425 Physical Agents (3).

The study of physical agents including noise, radiation (ionizing and non-ionizing forms), abnormal atmospheric pressure, and heat and cold stresses in the workplace. Emphasis is given to properties, measurements, health effects and engineering controls recommended and practiced by OSHA. Prerequisite: OSH 420.

Millersville University offers:

OSEH 321: 4 s.h. Environmental and Industrial Hygiene I
Fundamental theory and methods used in evaluating and controlling the health risks of chemical contaminants. Includes coverage of toxicology, exposure standards, medical surveillance, toxic air emissions, air sampling techniques, air pollution control, ventilation and protective equipment. Offered in fall. Prereq: MATH 101 or equivalent, OSEH 120, CHEM 104.

OSEH 422: 4 s.h. Environmental and Industrial Hygiene II
Biological agents and the physical agents of noise, ionizing radiation and nonionizing radiation with appropriate exposure assessment methodologies. Covers regulatory standards, control technology and compliance methods related to indoor air quality, sanitation, water quality, industrial waste and environmental management programs. Offered in spring. Prereq: PHYS 132, OSEH 321.

Marshall University offers:

SFT 454 Industrial Environmental Protection (3 hrs)
Environmental protection as related to industrial settings. Air/water quality, noise and chemical pollution and hazardous material control. (PR: CHM 212, MTH 140)

SFT 454L Environmental Programming/Sampling Lab (2 hrs)
Quantitative monitoring techniques for measuring air and water quality, the measurement of noise and chemical pollutions, and the evaluation of physical hazards. (PR: CR: SFT 454)

A7 Is the content, or are the skills, of the proposed course recommended or required by a professional society, accrediting authority, law or other external agency?

Yes, our accreditation criteria from the Applied Science Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) requires the coverage of Industrial Hygiene and highly recommends a laboratory component as well, see appendix C Safety Curriculum Criteria F -1 & 6.

Section B: Interdisciplinary Implications

B1 Will this course be taught by instructors from more than one department or team taught within the department?

This course will be taught by Safety Sciences Faculty only and it will not be team taught.

B2 What is the relationship between the content of this course and the content of courses offered by other departments?

The content of this course focuses on occupational health hazards and the only content that would be close would be courses in Environmental Health. The Environmental Health courses focus on community and environmental health. We have worked collaboratively with this department and in fact the Environmental Health Program has allowed students in the past to take our industrial hygiene courses as possible electives in their program.

B3 Will this course be cross-listed with other departments?

No, this course will not be cross listed with other departments.

B4 Will seats in this course be made available to students in the School of Continuing Education?

Yes, we will hold five seats for students in the School of Continuing Education.

Section C: Implementation

C1 Are faculty resources adequate?

Yes faculty resources are adequate. We were authorized to search for a vacant position the Fall of 2004 and with this new position as well as our existing faculty complement we will be able to offer this course once a year during the spring semester. Faculty assigned to teach this course will get three hours for teaching the lecture and two hours for each lab section taught.

C2 What other resources will be needed to teach this course and how adequate are the current resources: Reply in terms of the following:

- **Space:** We will use the existing classrooms for the lecture and the lab will be taught in the same lab rooms that were used in our old lab class associated with SAFE 402. These lab room will be used for this course during the spring semester and in the fall semester for the labs for SAFE 420.
- **Equipment:** We will use the existing equipment that was used in the old industrial hygiene courses of SAFE 301, 303, and 402.
- **Laboratory Supplies and other Consumable Goods:** We will use the existing laboratory supplies and consumable goods that was used in the old industrial hygiene courses of SAFE 301, 303, and 402. If additional supplies are needed we will use ESF funds.
- **Library materials:** The existing library resources to teach industrial hygiene courses are adequate.

- Travel Funds: Existing travel funds to support this class are adequate.

C3 Are any of the resources for this course funded by a grant?

None of the resources for this course are funded by a grant.

C4 How frequently do you expect this course to be offered?

We plan to offer this course once a year in the spring semester.

C5 How many sections of this course do you anticipate offering in any single semester?

We plan to offer one lecture section and three laboratory sections during the spring semester.

C6 How many students do you plan to accommodate in a section of this course? What is the justification for this planned number of students?

We can accommodate up to 40 students in the lecture and 15 students in each of the laboratory sections. The 15 students in the laboratory is necessary based on the size limitations of the laboratories as well as current equipment inventories.

C7 Does any professional society recommend enrollment limits or parameters for a course of this nature?

No professional societies recommend any enrollment limits. Our accrediting agency (ABET) does require an industrial hygiene laboratory.

C8 If this course is a distance education course, see the Implementation of Distance Education Agreement and the Undergraduate Distance Education Review Form in Appendix D and respond to the questions listed.

This course is not a distance education course.

Section D: Miscellaneous

Include any additional information valuable to those reviewing this new course proposal.

Not applicable!

Part III. Letters of Support or Acknowledgement

This new course may be an elective in the B.S. in Environmental Health and therefore a letter of support from this program is attached.

APPENDIX A: NEW SYLLABUS OF RECORD

I. Catalog Description

SAFE 320-Recognition, Evaluation and Control of Occupational Health Hazards I 3 class hours
3 lab hours
Prerequisites: BIOL 155, CHEM 102, PHYS 112 4 credit hours
(3c-31-4cr)

Provide the students an understanding of selected chemical stressors in the workplace that may present occupational health hazards to workers. Student learn how to anticipate, identify, evaluate and control chemical stressors including dusts, mists, metal fumes, airborne fibers, inorganic and organic gases and vapors, and oxygen deficient atmospheres. Hazard classification systems, adverse health effects from excessive exposures, workplace standards, sampling and analytical methods, and control options are emphasized.

II. Course Objectives

The student will be able to:

- A. anticipate and identify chemical stressors in the workplace.
- B. evaluate effectively chemical stressors in the workplace.
- C. identify and apply appropriate engineering controls to reduce employee exposures to chemical stressors in the workplace.
- D. identify and apply appropriate administrative controls to reduce employee exposures to chemical stressors in the workplace.
- E. select appropriate types of personal protective equipment required to control employee exposures to chemical stressors in the workplace.

III. Course Outline

- A. Introduction (3 Hours)
 - Historical aspects of occupational health
 - Anatomy/physiology review
- B. Dusts, Mists and Metal Fumes (3 Hours)
 - Recognition of common occupational exposures
 - Toxicology review and applicable exposure standards
 - Sampling strategies and monitoring equipment
 - Control strategies for common occupational exposures

C. Airborne Fibers	(3 Hours)
<ul style="list-style-type: none"> • Recognition of common occupational exposures • Toxicology review and applicable exposure standards • Sampling strategies and monitoring equipment • Control strategies for common occupational exposures 	
D. Combustible, Toxic and O ₂ Deficient Atmospheres	(3 Hours)
<ul style="list-style-type: none"> • Recognition of common occupational exposures • Toxicology review and applicable exposure standards • Sampling strategies and monitoring equipment • Control strategies for common occupational exposures 	
E. Inorganic and Organic Gases and Vapors)	(8 Hours)
<ul style="list-style-type: none"> • Recognition of common occupational exposures • Toxicology review and applicable exposure standards • Sampling strategies and monitoring equipment • Control strategies for common occupational exposures 	
Midterm Examination	(1 Hour)
F. Bulk and Wipe Sampling	(3 Hours)
<ul style="list-style-type: none"> • Sampling strategies • Interpreting sampling results 	
G. General Ventilation	(3 Hours)
<ul style="list-style-type: none"> • Design considerations • Evaluation of systems 	
H. Local Exhaust Ventilation	(12 Hours)
<ul style="list-style-type: none"> • System components • Design considerations • Evaluation of systems 	
I. Respiratory Protection	(3 Hours)
<ul style="list-style-type: none"> • Types of respirators • Regulatory requirements • Program development 	
Final Examination	(2 Hours)

Laboratory Exercises (14 three hour laboratories)

The following laboratory exercises are an integral part of the course, giving the students an opportunity to observe and apply many of the occupational health concepts first hand, at appropriate times during the course.

Laboratory Number	Title of Laboratory	Lecture Units Covered
1	Introduction to lab (equipment and write-up of reports)	A
2 - 3	Evaluation and control of dust and mist exposures	B
4	Evaluation and control of airborne fiber exposures	C
5	Evaluation and control of combustible atmospheres	D
6 - 7	Evaluation and control of gases and vapor exposures	E
8	Wipe sampling	F
9 -12	General and Local Exhaust Ventilation	G-H
13	Respiratory Protection and Fit Testing	I
14	Comprehensive Lab Exam	A-J

IV. Evaluation Methods

The faculty person assigned to teach this course could be one of several faculty within the Safety Sciences Department. What follows is an example of the evaluation methods and weighting used for this course:

Your final grade in this class will be a compilation of the following:

A. Examinations	25%
B. Quizzes	20%
C. Homework/Projects	20%
D. Laboratory Reports	30%
E. Class Participation	5%

Examinations and Quizzes: The examinations and quizzes will be short answer, multiple choice, true/false and matching with material coming from lecture notes, the text and handouts.

Homework/Projects: Homework and projects will be assigned based on the material covered in the specific unit, many of which are case studies and small group projects involving the recognition, evaluation and control of occupational health hazards.

Laboratory Reports: Students will complete a laboratory report after each laboratory session. The format for these reports as well as a grading rubric will be provided during the first laboratory class.

Class Participation: This includes but is not limited to individual participation in whole class and small group discussions and other brief class presentations.

V. Example Grading Scale

The following grading scale will be used to assign letter grades for this course:

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 60 - 69%
F = Below 60%

VI. Course Attendance Policy

The attendance policy for this course conforms to the University's Undergraduate Course Attendance Policy; in that all students are expected to attend and participate in class to enhance their learning.

VII. Required Textbooks

B.A. Plog and J.B. Schonfeld (eds). (2002). Fundamentals of Industrial Hygiene. National Safety Council. 5th Edition.

Bisesi, Michael S. and Kohn, James P. (1995). Industrial Hygiene Evaluation Methods. CRC Press, Boca Raton, FL.

American Conference of Industrial Hygienists (ACGIH). (2004). Industrial Ventilation: A Manual of Recommended Practice. American Conference of Industrial Hygienists (ACGIH). Cincinnati, OH.

American Conference of Governmental Industrial Hygienists (ACGIH). (2000). Threshold Limit Values. American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, OH.

VIII. Special Resource Requirements

Scientific Calculator

IX. Bibliography

Dinardi, S.R. (editor). (1997). The Occupational Environment –Its Evaluation and Control. American Industrial Hygiene Association, Fairfax, VA.

International Labor Office of UN. (1998). Encyclopedia of Occupational Health and Safety, 4th Edition, International Labor Office of UN.

Kohn, J.P. et al. (1996). Fundamentals of Occupational Safety and Health. Government Institutes, Rockville, MD.

Stern, M.B. and S.Z. (1998). Mansdorf. Applications and Computational Elements of Industrial Hygiene. CRC Press, Boca Raton, FL.

Historical Reference

Burgess, W.A. (1995). Recognition of Health Hazards in Industry, 2nd Edition. John Wiley & Sons, Inc., New York, NY.

Everly, G.S. and R.H.L. Feldman. (1985). Occupational Health Promotion. John Wiley & Sons, Inc., New York, NY.

Levy, B.S. and D.H. Wegman (editors). (1995). Occupational Health. 3rd Edition. Little, Brown and Company, New York, NY.

Peterson, Jack E. (1992). Industrial Health, 2nd Edition. American Conference of Governmental Industrial Hygienists, Inc., Cincinnati, OH.

Appendix B: Catalog Description

SAFE 320 Recognition, Evaluation and Control of Occupational Health Hazards I 3c-31-4cr

Prerequisites: BIOL 155, CHEM 102, PHYS 112

Provide the students an understanding of selected chemical stressors in the workplace that may present occupational health hazards to workers. Student learn how to anticipate, identify, evaluate and control chemical stressors including dusts, mists, metal fumes, airborne fibers, inorganic and organic gases and vapors, and oxygen deficient atmospheres. Hazard classification systems, adverse health effects from excessive exposures, workplace standards, sampling and analytical methods, and control options are emphasized.

Appendix C

ACCREDITATION CRITERIA 2003 Criteria for Accrediting Applied Science Programs

PROGRAM CRITERIA FOR SAFETY AND SIMILARLY NAMED APPLIED SCIENCE PROGRAMS

Lead Society: American Society of Safety Engineers

These program criteria apply to safety, occupational safety, industrial safety and similarly named applied science programs.

I. PROGRAM CRITERIA FOR BACCALAUREATE LEVEL PROGRAMS

Students

The quality and performance of the students and graduates is an important consideration in the evaluation of an academic safety program. The institution must evaluate and monitor students and alumni to determine its success in meeting program objectives.

Program Educational Objectives

Each safety program for which an institution seeks accreditation or reaccreditation shall have in place:

- a. detailed published educational objectives that are consistent with the mission of the institution and these criteria.
- b. a process based on the needs of the program's various constituencies in which the objectives are determined and periodically evaluated.
- c. a curriculum and process that ensures the achievement of these objectives.
- d. a system of ongoing evaluation that demonstrates achievement of these objectives and uses the results to improve the effectiveness of the program.

Program Outcomes and Assessment

Safety programs shall demonstrate that their graduates have:

- a. an ability to apply knowledge of mathematics and science
- b. an ability to analyze and interpret data
- c. an ability to anticipate, identify, and evaluate hazardous conditions and practices
- d. an ability to develop hazard control designs, methods, procedures and programs.
- e. an ability to function on multi-disciplinary teams
- f. an understanding of ethical and professional responsibility
- g. knowledge of contemporary issues within a global and societal context.

Each program must have an assessment process with documented results. Evidence must be given that the results are applied to the further development and improvement of the program. The assessment process must demonstrate that the outcomes important to the mission of the institution and the objectives of the program, including those listed above, are being measured. Evidence that may be used includes, but is not limited to, the following: student portfolios, including design projects; nationally normed subject content examinations; alumni surveys that document professional accomplishments and career development activities, employer surveys; and placement data of graduates.

The institution must have and enforce policies for the acceptance of transfer students and for the validation of credit courses taken elsewhere. The institution must also have and enforce procedures to assure that all students meet all program requirements.

Curriculum

- a. Graduates shall demonstrate proficiency in college algebra and statistics.
- b. Graduates shall demonstrate proficiency in the application of chemistry (including organic), physics, physiology, and biology as it pertains to the practice of safety.
- c. Graduates shall demonstrate proficiency in written composition and oral communications.
- d. Graduates shall demonstrate knowledge of the techniques, skills, and modern behavioral tools necessary for the practice of safety.
- e. Safety graduates shall demonstrate knowledge of:
 1. safety and health fundamentals
 2. industrial hygiene including toxicology
 3. systems safety and associated analytical techniques
 4. legal aspects of safety, health and environmental practice
 5. environmental aspects of safety and health
 6. product safety
 7. fire prevention and protection
 8. construction safety
 9. industrial or manufacturing processes
 10. applied mechanics for safety
- f. Safety graduates shall demonstrate competency in:
 1. laboratory techniques associated with industrial hygiene and basic sciences
 2. safety and health program management
 3. ergonomics
 4. accident/incident investigation and analysis
 5. the performance of education and training for safety
 6. fundamental exposure measurement techniques
 7. measurement of safety performance
- g. Students should be given the opportunity to apply principles of safety and health in a non-academic setting through an intern or cooperative work experience.

Lon Ferguson

From: "Thomas Simmons" <tsimmons@iup.edu>
To: "Lon Ferguson" <ferguson@iup.edu>
Sent: Thursday, January 27, 2005 7:48 PM
Subject: Re: Revisions to Safety Sciences Curriculum

Dear Lon,

I did look over the hardcopy materials that you sent to me. They look like good changes for your program, and I see benefit for my ENVH Program as well. I will draft a letter of support. Thank you.

Sincerely,

Tom Simmons

On Thu, 27 Jan 2005 16:11:56 -0500

"Lon Ferguson" <ferguson@iup.edu> wrote:

> Hi Tom:

>

> The Safety Sciences Curriculum proposal was recently approved by
 > the CUCC and they asked me to follow-up on previous requests for
 > letters of support for course changes, see memo below.

>

>

>

> Your input would be appreciated!

>

>

>

>

>

> To: Dr. Thomas Simmons, Assistant Chairperson, Biology
 > Department

>

> From: Dr. Lon Ferguson, Chairperson, Safety Sciences Department

>

> Date: 1/20/2005

>

> Re: Revisions to Safety Sciences Curriculum

>

> As a member of the Safety Sciences Advisory Committee you are aware
 > of our recent meetings to review our B.S. Curriculum. This review
 > included liberal studies requirements, pre-requisite courses in math,
 > sciences and management as well as core safety courses. Following
 > the most recent meeting, the committee recommended the following
 > changes for department faculty consideration:

>

>

>

> · Replace MATH 121 with MATH 105

>

> · Add undergraduate 200 level courses in Hazardous Materials

>and Safety Management

>

>· Revise SAFE 210 Environmental Safety to eliminate coverage
>of hazardous materials and make this a senior level course to better
>reflect course content.

>

>· Replace ECON 122 with ACCT 200 Accounting Principles I.

>

>· Complete revision of Industrial Hygiene courses (SAFE 301,
>303, and 402) to include two four credit courses with a lab (SAFE 320
>and 420). In a nutshell these courses will no longer be divided into
>recognition, evaluation and control of health hazards but will be
>split based on chemical, biological and physical health hazards. As
>previously done, there was tremendous overlap in coverage and now the
>recognition, evaluation and control of the various hazards will be
>covered in the same course.

>

>

>

> Based on these recommendations and a review of ABET accreditation
>criteria for safety programs, Department Faculty voted to change our
>B.S. Curriculum. We realize that Environmental Health Majors will be
>affected by the change from the revision of SAFE 210 to 410 but as
>you can see in the attached course proposals the major change was to
>simply remove coverage of hazardous materials and to make this a
>senior level course. We will as we have in the past waive all
>prerequisites for Environmental Health Majors. The other changes
>that will affect electives are the change from SAFE 301,303, and 402
>to SAFE 320 and 420. Hopefully, these courses can remain as elective
>courses for your majors.

>

>

>

> Please see the attached curriculum and course proposals. As part of
>our curriculum proposal, would you please send a letter of support
>for this change, thank you!

>

>

>

>

>

>